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October 29, 1993

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Mr. William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY


Re: MM Docket No. 93-177, RM-7594

Dear Mr. Caton:

Enclosed are five copies (original and four) of comments prepared by Cohen, Dippell and Everist, P.C. in response to the FCC Notice of Inquiry in MM Docket No. 93-177, RM-7594, in the matter of an Inquiry to the Commission's policy rules regarding AM service directional antenna performance verification.

If there are any questions, please do not hesitate to contact this office.

Sincerely,



Donald G. Everist
President

DGE:mcw
Enclosure

COHEN, DIPPELL AND EVERIST, P. C.

Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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OCT 29 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY*In the Matter of*

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An Inquiry into the Commission's
Policies and Rules Regarding AM
Radio Service Directional Antenna
Performance Verification

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MM Docket 93-177

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RM-7594

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Notice of Inquiry**INTRODUCTION**

These comments have been prepared by the consulting engineering firm of Cohen, Dippell and Everist, P.C. concerning the Federal Communications Commission ("FCC") Notice of Inquiry, MM Docket No. 93-177, RM-7594 ("Notice"). Cohen, Dippell and Everist, P.C. ("CDE") and its predecessors have practiced before the FCC for over fifty years in broadcast and telecommunications matters.

There are several issues that are concurrent. The first entails the petitioners' desire to improve and revise the existing rules and policies pertaining to directional antenna performance and their ability to meet the intent of the FCC Rules adopted in Docket 87-287. The second issue is the FCC's desire to review other attendant rules which may also be improved and revised. In addition, the FCC frames for discussion purposes four (4) broad areas to which the comments are to be directed. We believe the FCC has undertaken a valuable service to the broadcast community in undertaking this review of this aspect of the FCC Rules. It serves to indicate that the FCC is truly committed to preserving a national asset, that is AM broadcast. We appreciate the FCC efforts in this era of reduced budgets and expanded congressional-mandated regulation. We share the FCC's concerns and goals.

The FCC specifically listed eighteen (18) rules which it believes impact the "Notice". These comments review the rules listed by the FCC and revisions it believed pertinent; and makes suggestions in other areas not directly indicated in the Notice.

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SUGGESTED REVISION OF CURRENT RULES

SECTION 73.51

Section 73.51(f)(2)(i) and (ii) list the factor F for transmitter manufacturer's test report for power level. This table should be updated for the newer transmitters.

SECTION 73.58

Section 73.58(e) provides for indicating instruments for power determination and in the event of failure the alternative in the event a substitute meter is not available. With the advent of the newer transmitters, automatic power control circuit is a useful alternative. The Rules should reflect this alternative.

SECTION 73.68

Section 73.68 details the requirements for sample systems for antenna monitors. CDE believes that Section 73.68(d)(3) should be expanded to include replacement of identical components above the base insulator in the identical position (such as transmission lines etc.) be exempt from a partial proof-of-performance provided that a showing as outlined in Section 73.69(d) is made.

SECTION 73.88

Section 73.88 lists the responsibilities of broadcast station regarding 1 V/m contour (blanketing) complaints. Further FCC Form 301 Section V-A and 340, Paragraph 13 require that a showing of less than 300 receivers or less than 1% of the population within the 25 mV/m contour be made. As indicated in the Notice, many of the sites, once located in rural areas, are surrounded by urban settings. In addition, the FCC has indicated the 25 mV/m contour no longer serves the purpose of establishing signal level over segments of the community. Therefore, the Commission should select another contour (such as the 5 mV/m contour) as the basis to determine the threshold value.^{1/} The percentage should be changed. Initially, CDE recommends that a percentage of three (3)% be used. We believe this would be a more realistic

^{1/}This will be especially important for expanded band operations which will generally need to locate near the principal community due to the 1 kW nighttime power limitation while permitted to operate at a power of 10 kW daytime. If true, the 10 kW daytime 1 mV/m contour is expected to encompass a relatively large population.

number in light of present allocation and environmental factors, strikes a balance and eliminates reliance on a contour the FCC no longer finds useful.

SECTION 73.158

Another area CDE believes that the FCC may wish to visit is in the method of the taking of monitor points. On December 7, 1979^{2/}, the FCC, after a long and deliberate process, made a change which reduced the burden on the FCC and industry by focusing on the operational problems in taking monitor points in changing and varying climatic conditions. We continue to subscribe to this policy advanced by this letter. We do believe the FCC should additionally consider, for the existing and expanded^{3/} band, permitting monitor point limits established by ratio of the directional to the non-directional signal. In this fashion, under the effects of the environment whether in the winter, summer, wet or dry, etc. the scrutiny of the monitor points of the directional array can be maintained.

MODEL 1 AND MODEL 2 CARRIER FREQUENCY TOLERANCE

The Commission as of this date, has left unaltered the transmitter carrier frequency tolerance if stereophonic operation is adopted. CDE has received numerous reports that false stereo receiver indications can be a problem in certain conditions. One of those conditions appear to be traced to any two stations operating with a frequency difference that produce combinations at or near the stereo pilot frequency. The receiver stereo pilot indicator reacts to this frequency difference such that it indicates the presence of stereo operation. This inadvertently triggers that portion of the receiver circuitry and thereby results in the introduction of wideband noise in certain receivers. The Commission should study whether the 20 Hz tolerance is contributing to this phenomena and if so whether the AM carrier frequency should be maintained to within 10 Hz. Therefore, the Commission is urged to adopt an appropriate carrier frequency tolerance.

^{2/}FCC News entitled, "Commission Relaxes Monitoring Point Policy for AM Directional Stations", dated December 7, 1979.

^{3/}We believe that this would be a valuable tool for the expanded band since over the years we believe the changes due to environmental factors will be more apparent at the higher frequencies.

FIRST ADJACENT CHANNEL INTERFERENCE METHODOLOGY

The Commission has adopted new rules for nighttime interference calculation by considering the first-adjacent channel. However, it does not specify how groundwave to groundwave nighttime interference is to be considered. For example, in many areas where the combination of power, antenna pattern, ground conductivity, or the distribution of Class C (local) channels are prevalent, computed first-adjacent interference can result. Such groundwave is 100% of the time in contrast to the determinations of skywave interference that is 10% of the time. An example of first-adjacent channel interference is found between KRSO, 590 kHz, San Bernardino, California with KKLQ, 600 kHz, San Diego, California; KKLQ, 600 kHz, San Diego, California with KAVL, 610 kHz, Lancaster, California and KKQL, 600 kHz, San Diego, California with KAVL, 610 kHz, Lancaster, California. This inclusion of groundwave interference with skywave calculations could radically alter the predicted interference-free service stations. Furthermore, it is uncertain how the 10% field reduction rule should apply in these circumstances, if at all.

OTHER FACTORS WHICH MAY IMPACT THE RULES

Practice and necessity are forcing consideration of using existing sites to move and combine operations. This development is in large part a result of the unavailability of land in which to design and construct the directional arrays. Economic factors also are instrumental in limiting the number of available AM sites.^{4/}

Such combinations can result in foreshortened ground systems^{5/}. Other complications can arise on a new site in which land availability is not sufficient for a number of reasons.

Over the years, this office has conducted or supervised a number of proof-of-performances on non-directional and directional arrays in this country as well as on foreign soil. These systems well constructed, universally had to recognize the realities of ground system

^{4/}that meet service requirements to the community

^{5/}This can result when a lower frequency station proposes to occupy the site of a higher frequency station or the land is limited on which a tower can be constructed.

placement. In a number of instances the ground system length^{6/} could not be or was not extended out to the normal ninety degrees length about all towers. These variations about each tower have been with different electrical, power, phase, impedance combinations and we can not think of one single instance where the null of the pattern or other important areas of the pattern did not develop as a result of the decrease or shortened ground system. In other words, this apparent lack of physical unsymmetry did not result in an apparent diminution of pattern performance. Therefore, while we support the concept of the installation of 120 radials about each tower, we believe that the Commission should solicit comments on the necessity of having a full ninety degree ground system beneath a tower.

The Notice invites comments on four broad areas ranging from instrumentation, measurement techniques in the field, a comparison of theoretical results over measured and advisability of taking into account other structures in the array. These issues are not only complex but are not easily defined. However, we offer the following comments which CDE has developed by experience over the number of years that this firm or its predecessors have been in business.

One of the first issues that we believe that the FCC must foster is a comprehensive and universal system within the FCC^{7/}. This is appropriate identification and construction permit conditions on communication towers authorized near any AM station. This will be especially

^{6/}The proposed ground system is disclosed in the construction permit application or the proof-of-performance application.

^{7/}This could include FAA since the FCC and the FAA share common goals. For example, the FAA imposes electromagnetic compatibility on its installations and the FCC should require reciprocal treatment of structures within 0.5 miles of non-directional and 2 miles of a directional AM operation, similarly the FAA airspace determination of no hazard should include a condition of the proponent's tower if it is changed then the impact on the AM station can be assessed. In addition, the Commission should reemphasize that applications received for facilities requiring construction of new towers within a specified distance, such authorization should be appropriately conditioned. We are aware of instances where facilities were authorized which required new towers in the Common Carrier Bureau and the Broadcast Bureau without any such condition. In each instance, the new facility and tower was less than 0.25 mile from the AM station. Placing these types of structures without proper planning will more than offset any gains resulting from the new rules and will serve to degrade the allocation picture and the operation of the station. This will be particularly true if the predictions of Personal Communications Network (PCN) and other infrastructure information technology is adopted. For example, in one major market, it is estimated that 11,000 new sites will be required for PCN.

important if the FCC is to achieve its goal in implementing Model 1 parameters for the expanded band as well as existing band. Furthermore, we do not believe it practical nor desirable to provide a litmus test for every obstruction, be it a hill, building, lamp pole, etc., nor do we subscribe to detuning trees or other objects found in nature.

Rules and policies that we believe the FCC may wish to review in its files is the systems built for "critical directional antenna systems" (see Section 73.14 of the FCC Rules). This will provide a basis for assessment whether or not, that the present body of knowledge and practice is sufficient to justify reliance on electrical parameters alone. Based upon our experience, we do not believe the sincere effort placed into monitoring and maintaining these arrays have resulted in a procedure that will allow the FCC to revise significantly its current procedures in establishing whether an array is adjusted and operating within its instrument of authorization based solely upon instrumentation. Therefore, while we subscribe in large measure to the improvement in monitoring occurring in the last twenty years that recognition be continued by the FCC in the taking of proof-of-performances for directional arrays. However, by in large, we believe with a few exceptions, the FCC has through its rules and policies, shown a balance between what is achievable and practical.

Another area, we believe the FCC can seek information, is its recent emphasis of inspections. The FCC made note of commentators indicating alleged misadjustment of AM directional arrays was a major contributing cause of high-interference levels in the current band. This firm believes this to be unfounded fear and we are not aware of any substantive studies which would have yielded to that conclusion. We believe the FCC recent experience indicates while operational improvements can be made and emphasis needs to be placed on antenna system integrity and maintenance, that the directional arrays were found to be in general compliance with the rules.

We have used various computational mechanisms over the intervening years including the method-of-moments program. We continue to explore new methods of predicting radiation values not only for the AM band for other frequencies as well. This office has yet to find a

unique modeling program which can take into account all the factors^{8/} in the environment and nor can we advance any special and unique monitoring system which will universally achieve the goals we all share. This firm would be delighted to share such a system or such a technique but has found any number of instances that the parameters derived from a specially constructed monitoring system has not resulted in the desired pattern to the degree dictated by the FCC. We note much improvement in technique as well as equipment in the last fifty years; however, we find the goal of accurately monitoring an array with precision still a formidable task.

SUMMARY

In conclusion, we offer our support to the Notice recognizing the special task of revising policies and rules that have served the industry and FCC well. The FCC is to be commended in its continuing efforts to foster, nurture and improve the AM service.

Despite all the rhetoric, CDE believes the AM band remains an integral part of the country's communications fabric. The current rules and resulting service provide a benchmark for other emerging countries whose own system has not had the benefit of the FCC's long-term guidance and interest. To this end, this firm plans to be an active participant in the proceeding.

Respectfully Submitted,

COHEN, DIPPELL AND EVERIST, P.C.



Donald G. Everist, President

Date: October 29, 1993

^{8/}If the FCC desires to explore in the NPRM alternate methods, we note that techniques are now available to take into account the conductivity in the area of the transmitter site. This would affect the vertical section of antenna pattern. This approach is described in Ch. 16, Electromagnetic Waves and Radiating Systems, 2nd Ed., Edward C. Jordan/Keith G. Balmain.